TMDL FY05 Sampling Segments 1803A Elm Creek and 1803B Sandies Creek

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Sampling Components

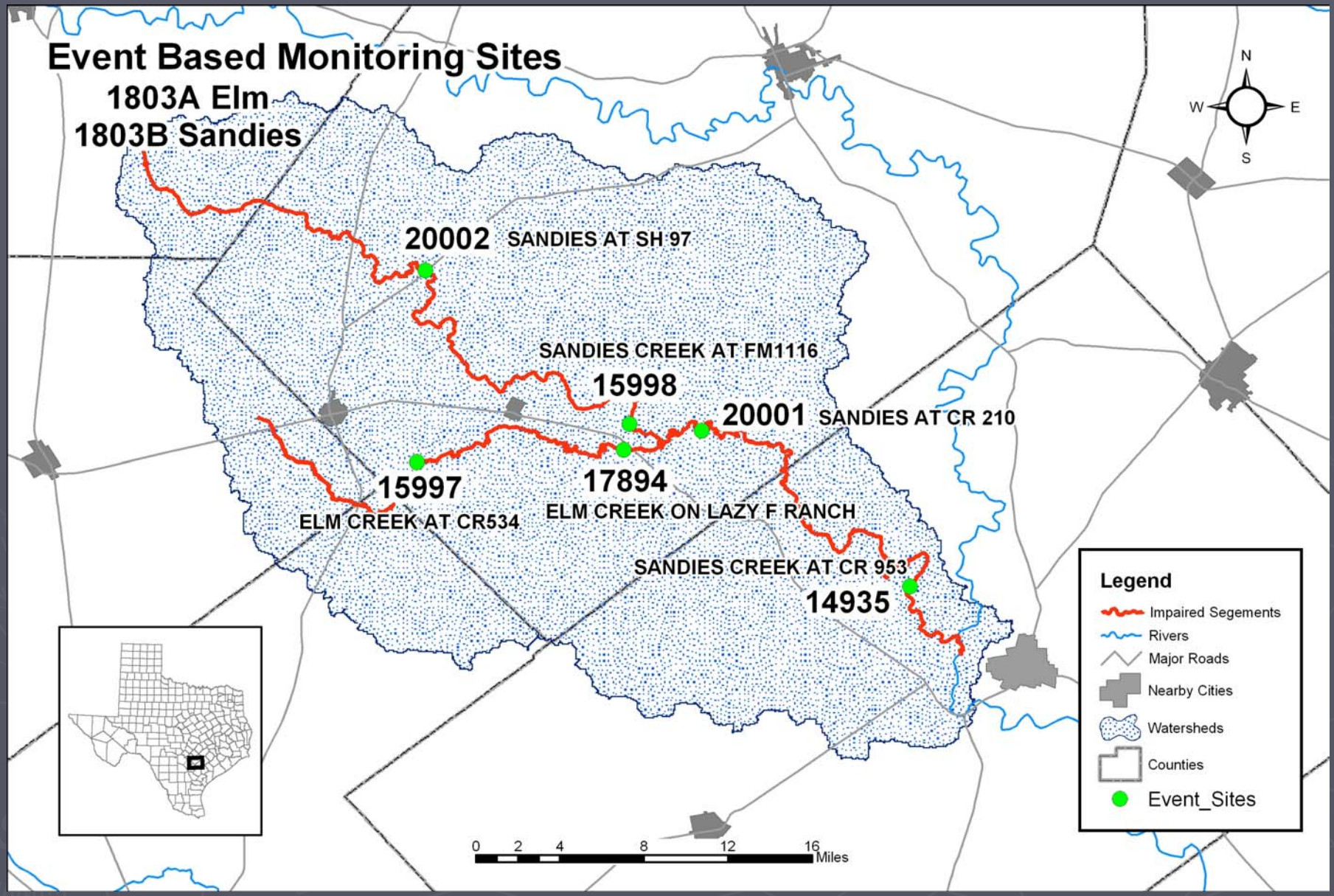
- Event Based Monitoring
- Bacterial Source Tracking (BST)
- Stream Cross Sections
- Time of Travel Study

Event Based Monitoring

- Event based monitoring will occur within the watershed in support of modeling activities for FY05.
- Event based monitoring will include sampling of a network of spatially distributed stations.
- These surveys will be mounted in response to significant rainfall in the project area. Rainfall must be sufficient to produce runoff in the study segments.

Event Based Monitoring

- Generally, it is anticipated that rainfall on the order of 1.0 inch will be necessary to produce the required runoff condition.
- Field crews will keep track of local weather forecasts during preparation for sampling.
- Three separate Events scheduled for FY05.
- Average storm event is four days.
- Samples will be taken every eight hours during the Event.

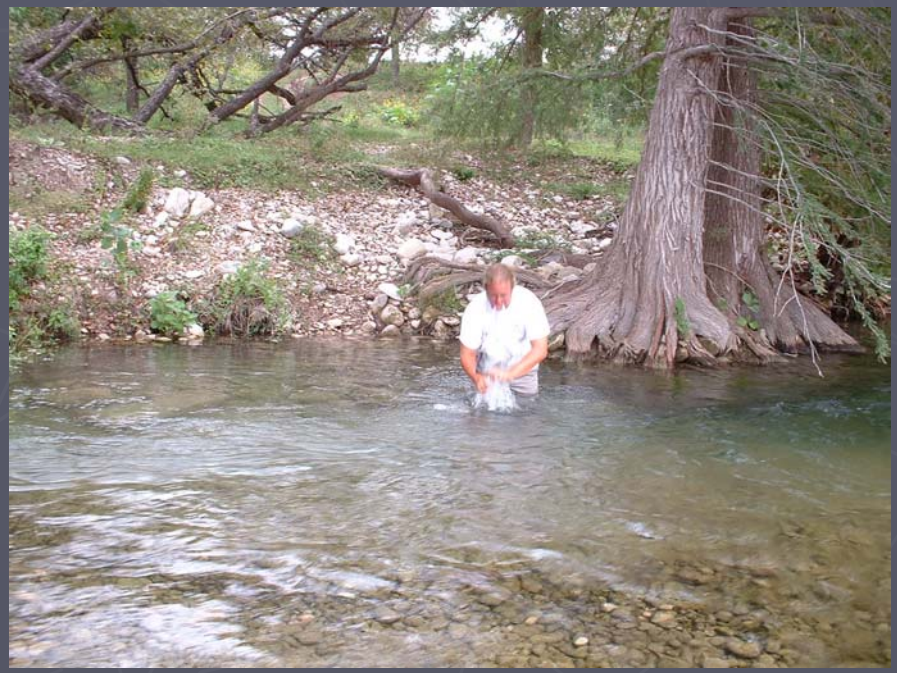

Event Based Monitoring Sites
1803A Elm
1803B Sandies
20002 SANDIES AT SH 97
SANDIES CREEK AT FM1116
15998
20001 SANDIES AT CR 210
17894
ELM CREEK ON LAZY F RANCH
15997
ELM CREEK AT CR534
SANDIES CREEK AT CR 953
14935
N
W
E
S
0 2 4 8 12 16
Miles
Legend
Impaired Segements
Rivers
Major Roads
Nearby Cities
Watersheds
Counties
Event_Sites

Data Collected During an Event

- Instantaneous dissolved oxygen, temperature, pH, and conductivity using a Hydrolab Datasonde 4a.

Data Collected During an Event

- Water samples collected every eight hours.
- Samples transported to San Antonio Testing Labs and analyzed for: alkalinity, chloride, sulfate, nitrate/nitrite, TKN, total phosphate, orthophosphate, ammonia, TOC, TSS, Chlorophyll-a, and phenophytin-a.



Data Collected During an Event

- Bacterial samples collected every eight hours during an Event and analyzed in field for E-coli colony counts using MPN assays.

Data Collected During an Event

- Instantaneous in-stream flow measurements will be taken every eight hours with an downward-looking Acoustic Doppler Current Profiler (ADCP) Mounted in a specially designed "Riverboat".

Bacterial Source Tracking

- Bacterial Source Tracking (BST) is another form of specialized monitoring that will occur in FY05.
- BST uses DNA analysis to identify the sources of bacterial indicators.
- Samples will be taken during an Event and transported to SATL for E-coli culture and preservation.
- Samples will later be compared to a segment specific library of possible bacteria sources.

Stream Cross Sections

- In order to provide accurate data on the morphology of the stream segment, CBI will perform a survey of the stream bed at each station
- Benchmarks will be established at each end of the cross section using a differentially corrected GPS
- The transects will then be measured using a Leika Total Station

Time of Travel

- CBI will conduct a time of travel study for both Sandies and Elm creek.
- When related to stream discharge, distance along the channel, and dispersion, time of travel data is useful in determining the amount of time required for a water-soluble contaminant to move between points along the study reach.
- EPA approved Rhodamine dye will be injected into the stream above the study reach to insure proper mixing of the dye.

Time of Travel

- Within the reach, sampling sites will be selected for monitoring the leading edge, maximum concentration, and trailing edge of the dye cloud.
- Equipment used for this monitoring will be a Wet Labs ECO Triplet Flourometer, CBI Data-logger, and an ADCP for measurement of flow at each sampling site.
- Time of travel studies will be initiated during ambient flow conditions.